

# Hexagons, Satellites and Semantic Background

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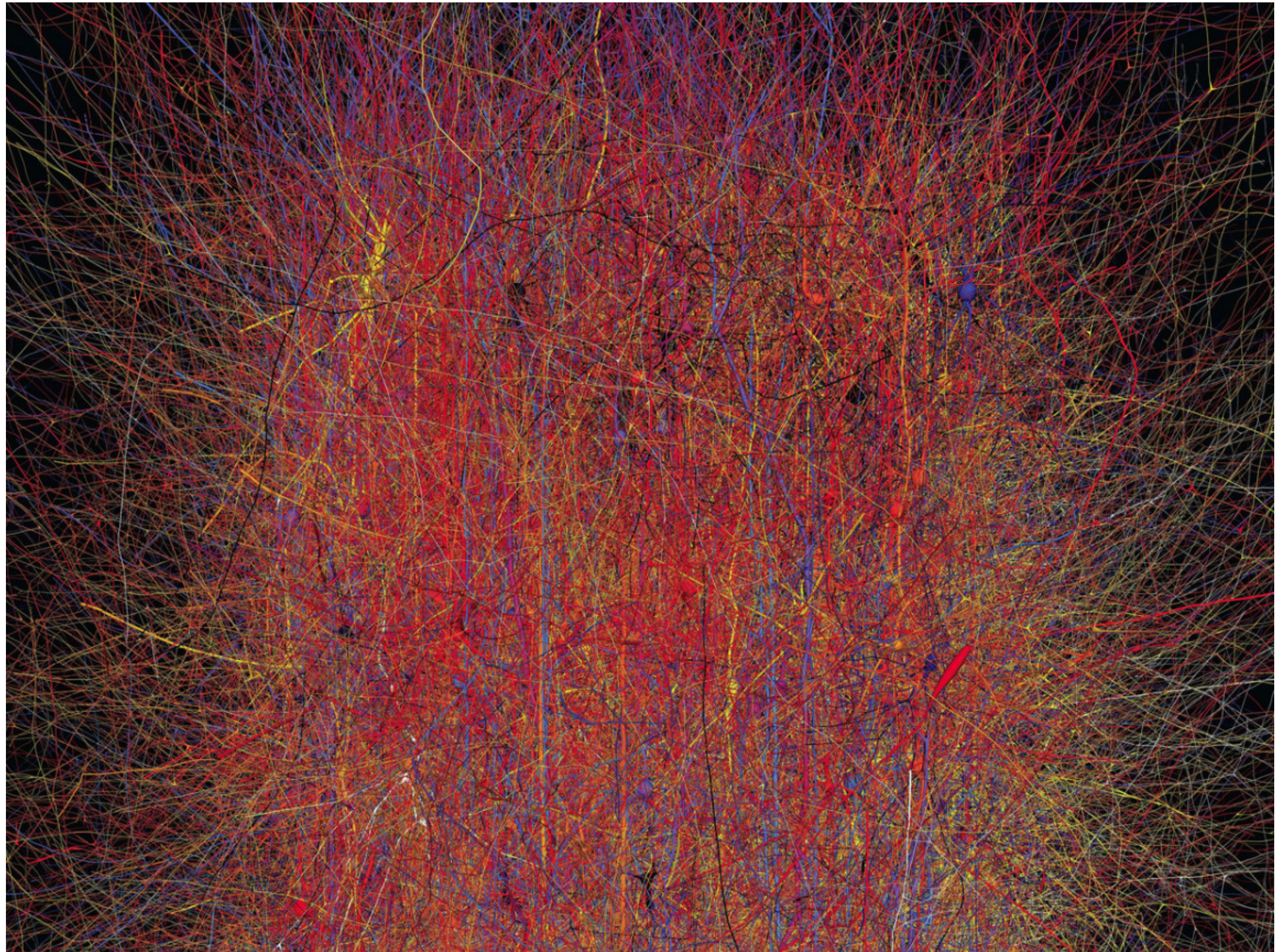
École polytechnique fédérale de Lausanne (EPFL)

Micro Meso Macro

Thursday, November 8<sup>th</sup> 2018

# 1. Actual Networks

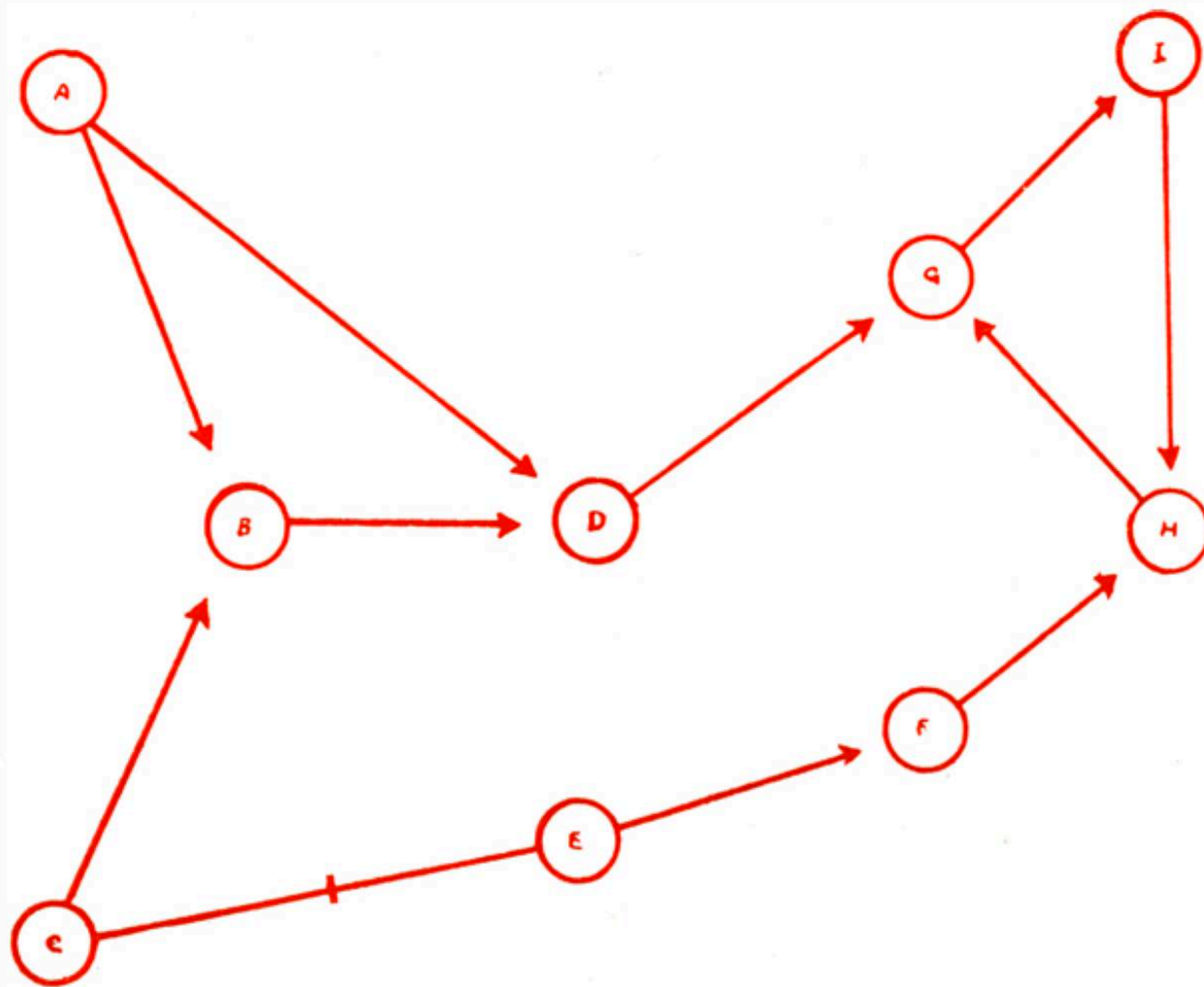




Lima, Manuel. 2011. Visual Complexity: Mapping Patterns of Information.

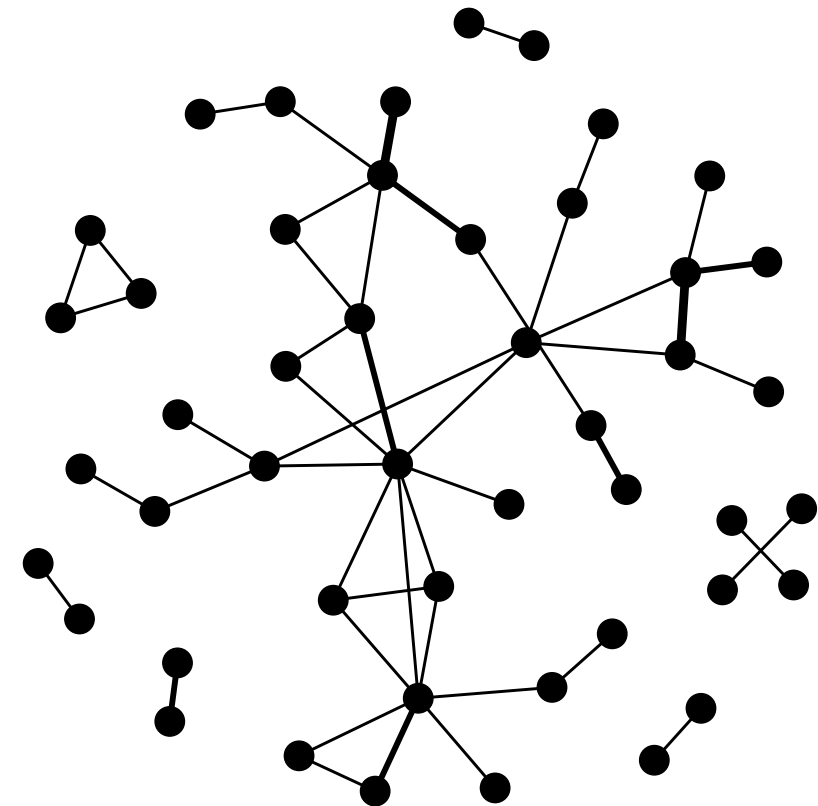






Moreno, Jacob L. 1934. Who Shall Survive?

<b>Max Connections</b>	Infinite
<b>Metrics</b>	Distance / Proximity
<b>Polarity</b>	Absent
<b>Visualization space</b>	two-dimensional
<b>Data space</b>	multi-dimensional



Simplification

## 2. Affinity Map

Mapping affinities:  
visualizing  
academic practice  
through collaboration

Thesis



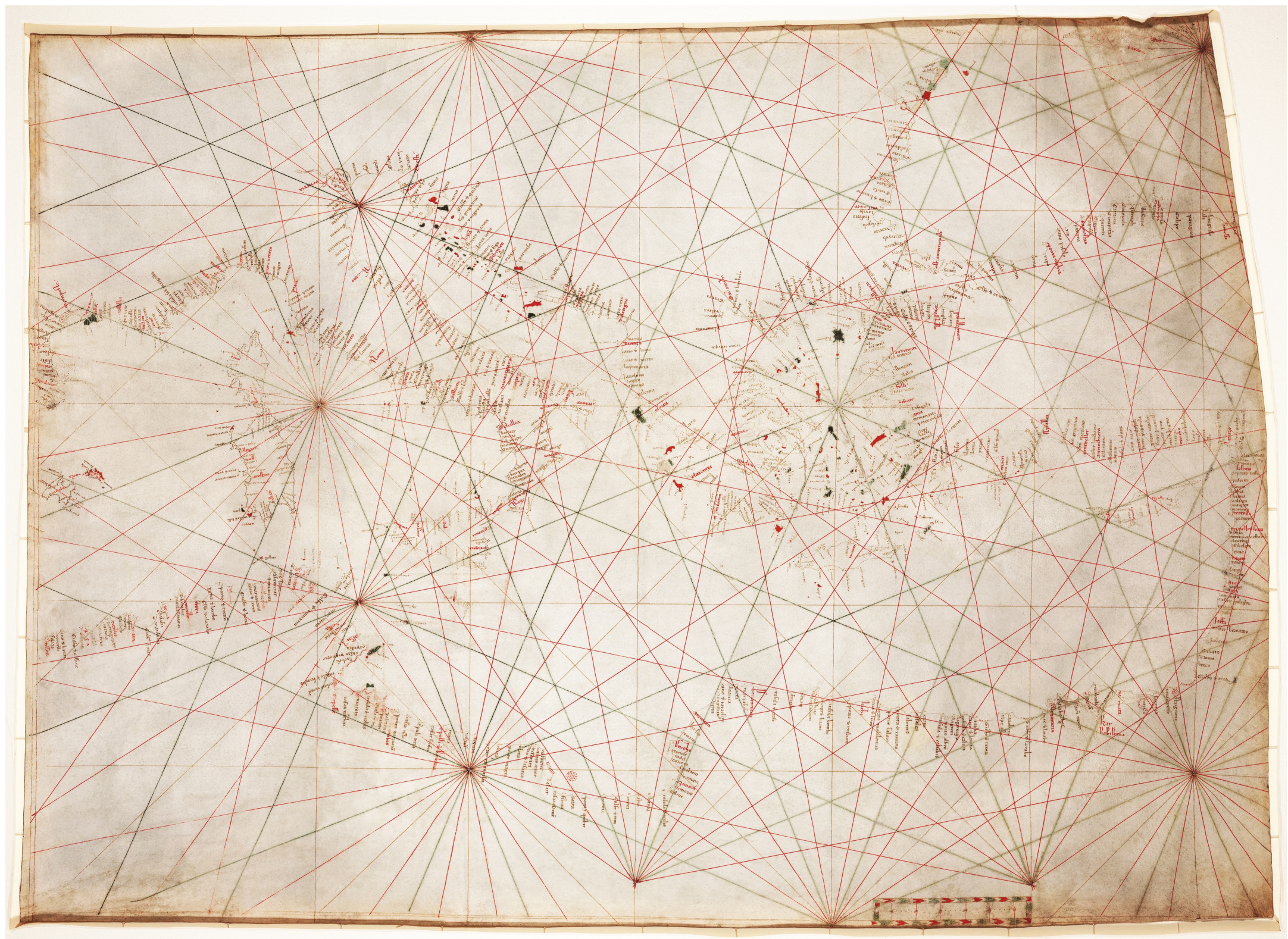


### 3. Hexagonal Pattern



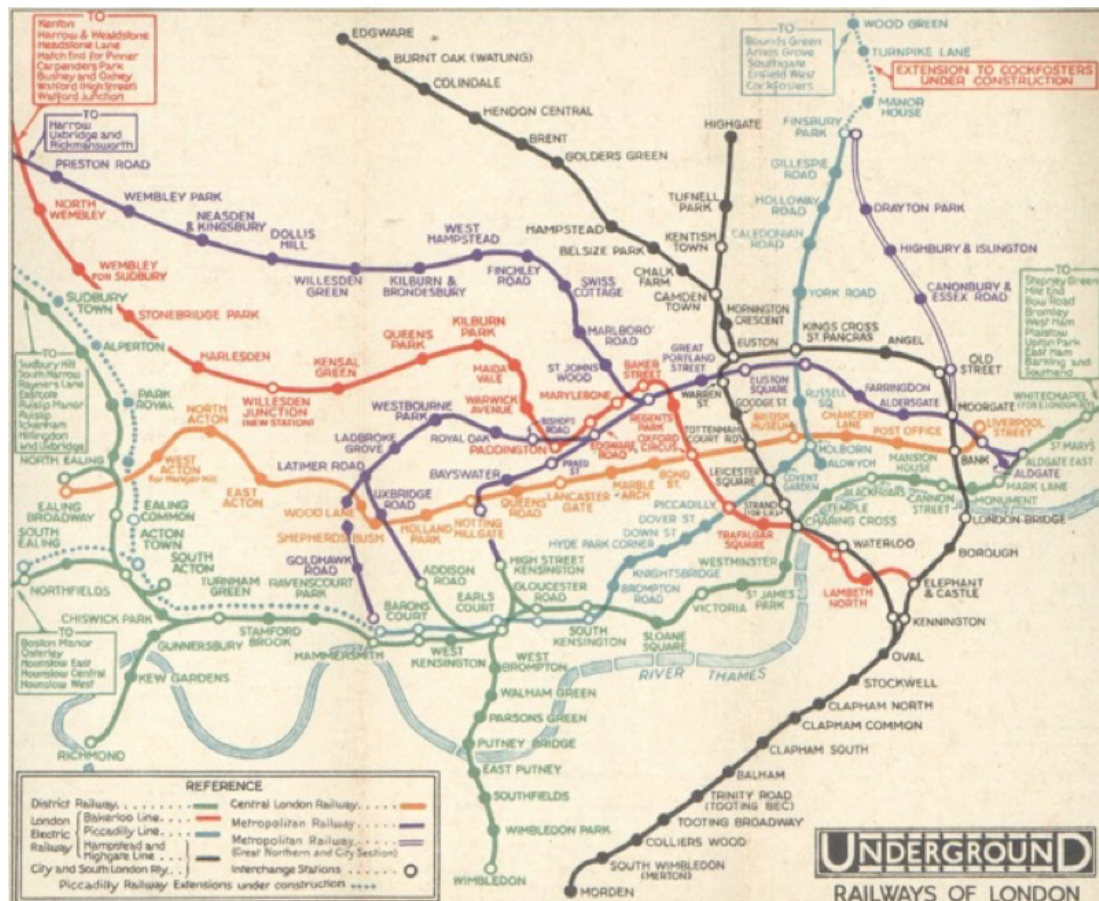
*“Design is the conscious and intuitive effort to impose **meaningful order**. [...] Our delight in the order we find in frost flowers on a window pane, in the hexagonal perfection of a honeycomb, in leaves, or in the architecture of a rose, reflects man’s preoccupation with pattern.”*





A Portolan chart that represents the Mediterranean Sea and its winds during the second quarter of the 14th century. © Library of Congress

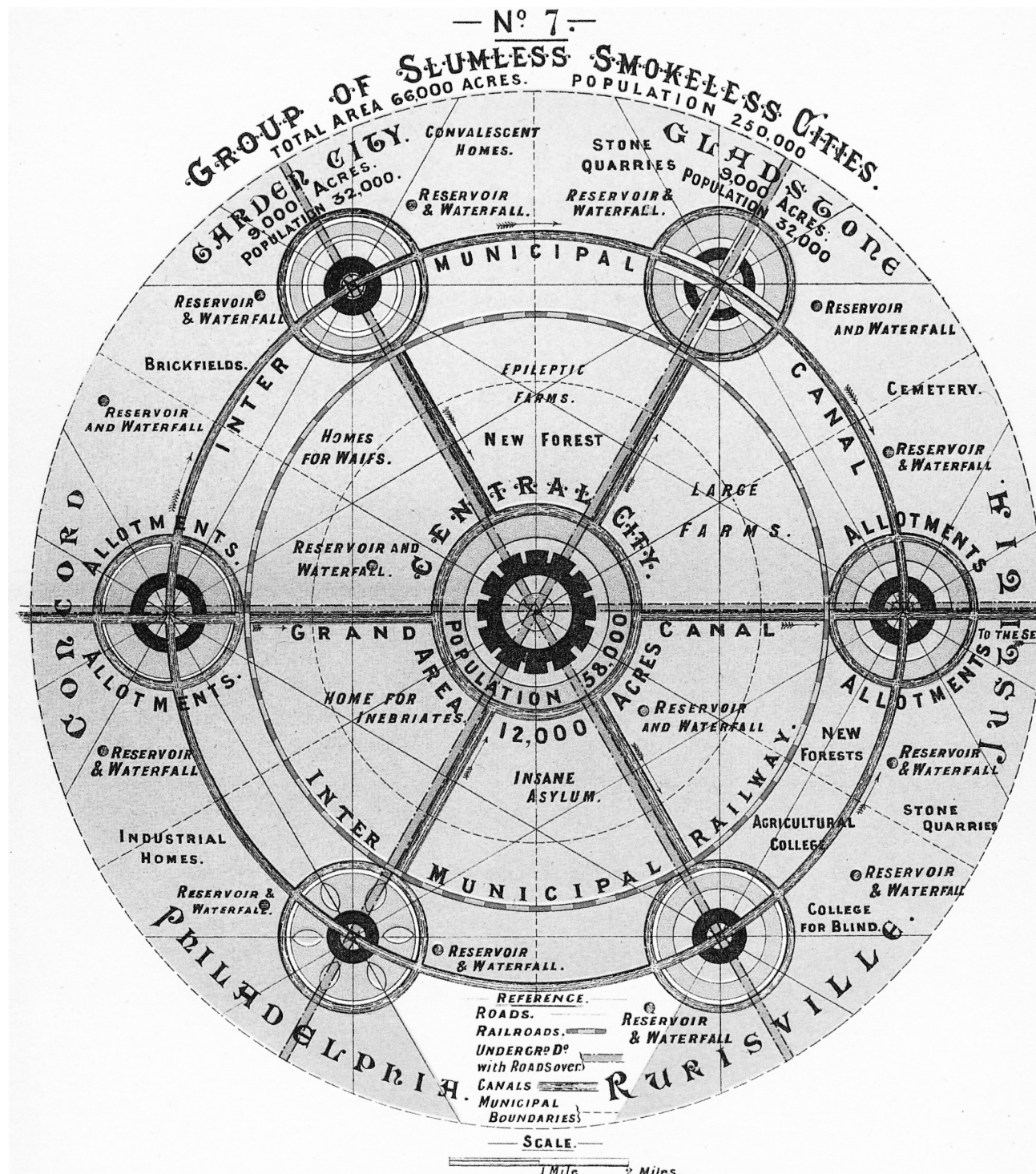




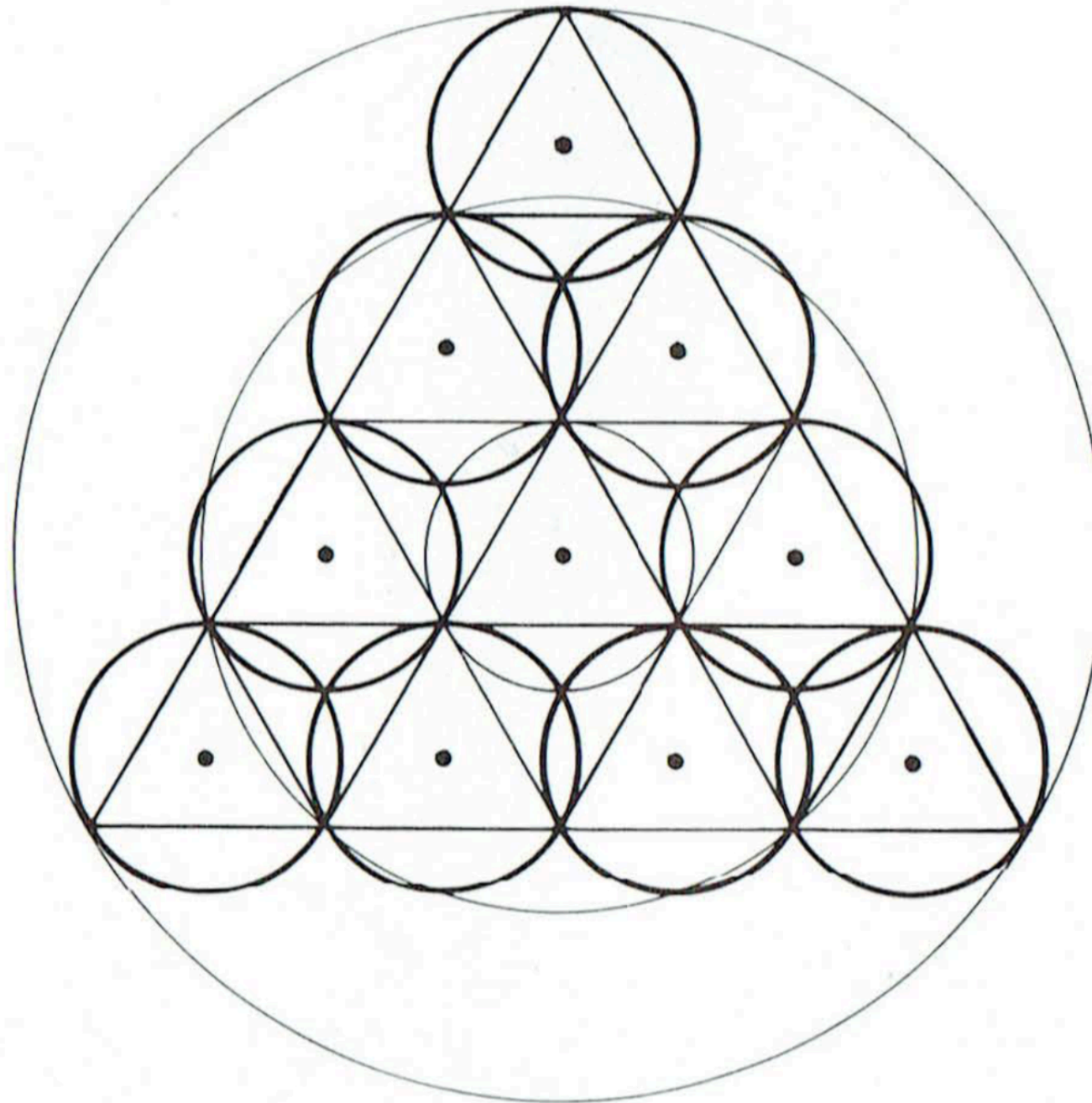
Pre and post Harry Beck's London underground map.

*“Regular graphs are unique in that each node has exactly the same number of links. Indeed, in a two-dimensional mesh of perpendicular lines forming a simple square lattice each node has exactly four links, or in a **hexagonal lattice** of a beehive each node is connected to exactly three others [links].”*





*“From the basic circle and the hexagonal arrangement of a group of tangential circles of the same radius surrounding it emerge the three primary shapes: the triangle, the hexagon and the square. These three shapes are explored in detail to reveal their inherent structure, subdivision, proportional ratios and interrelatedness. From this last, which can be called the ‘**sociability**’ of the polygons.”*



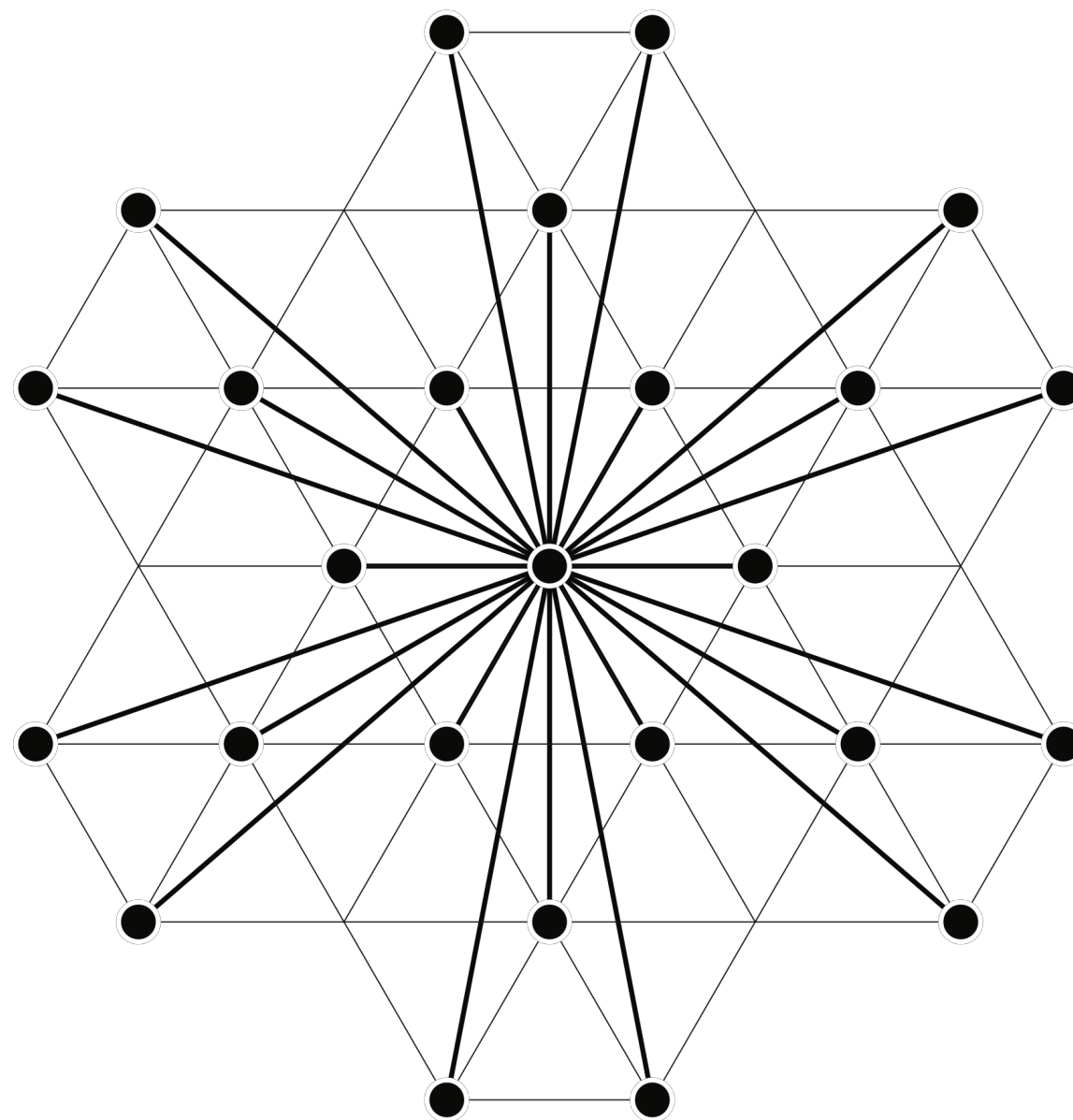
Critchlow, Keith. 1976. Islamic Patterns.





18. Ma  
FAR





24 direct connections

*Hexagonal tessellation properties:*

*Optimize space*

*Normalize link direction*

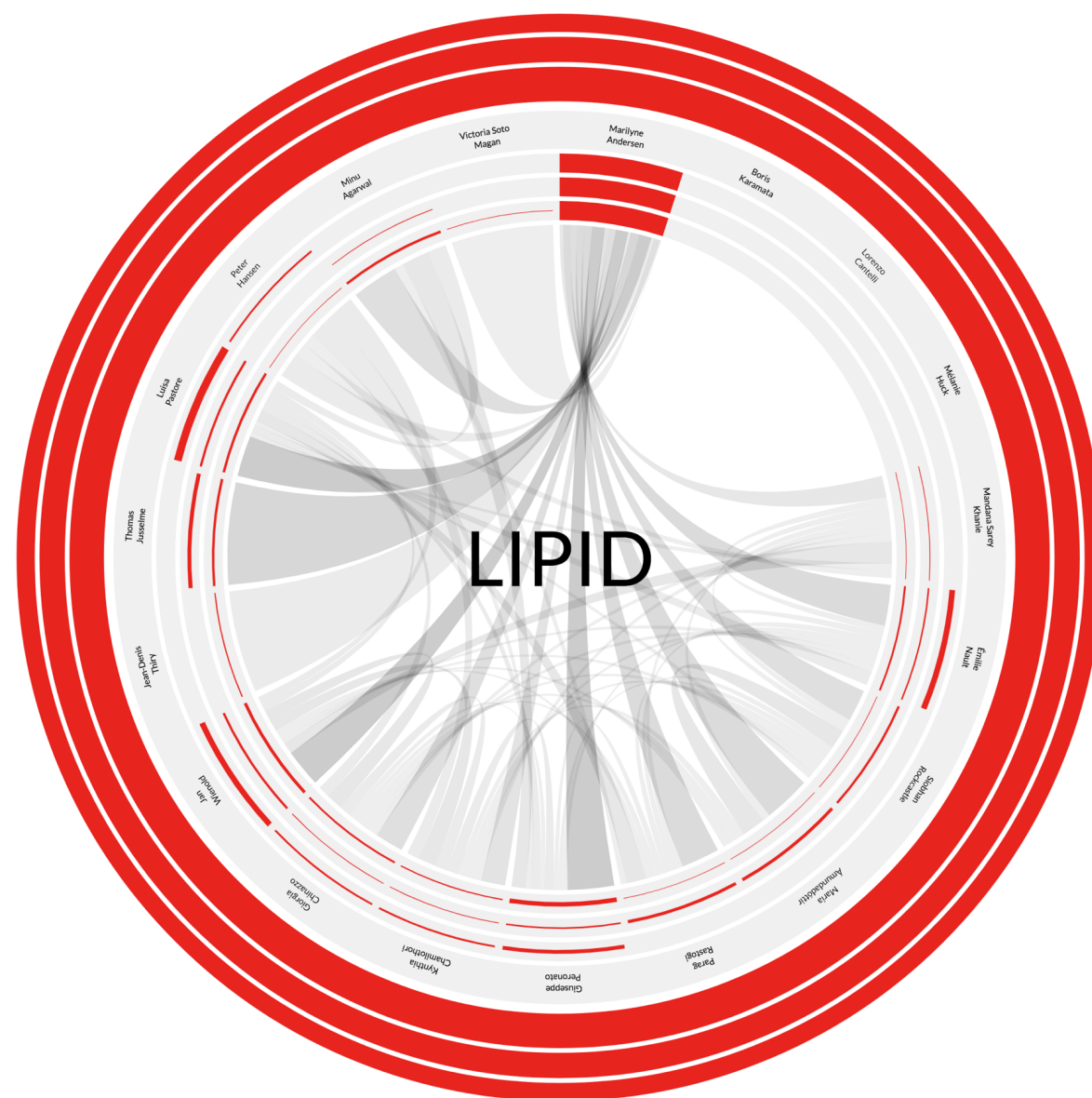
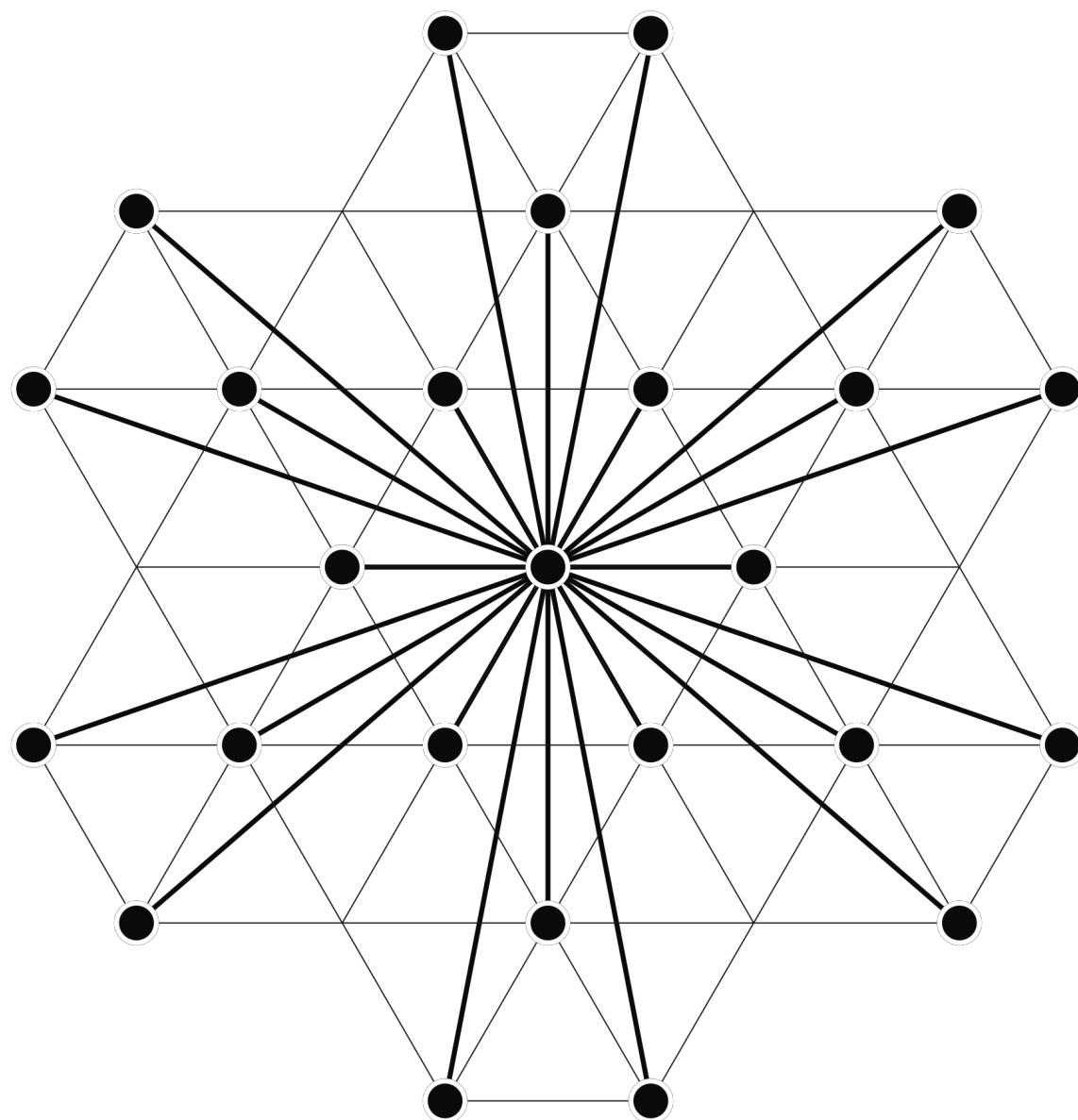
*Normalize distances*

*Reduce overlapping*

*Infinite tessellation*

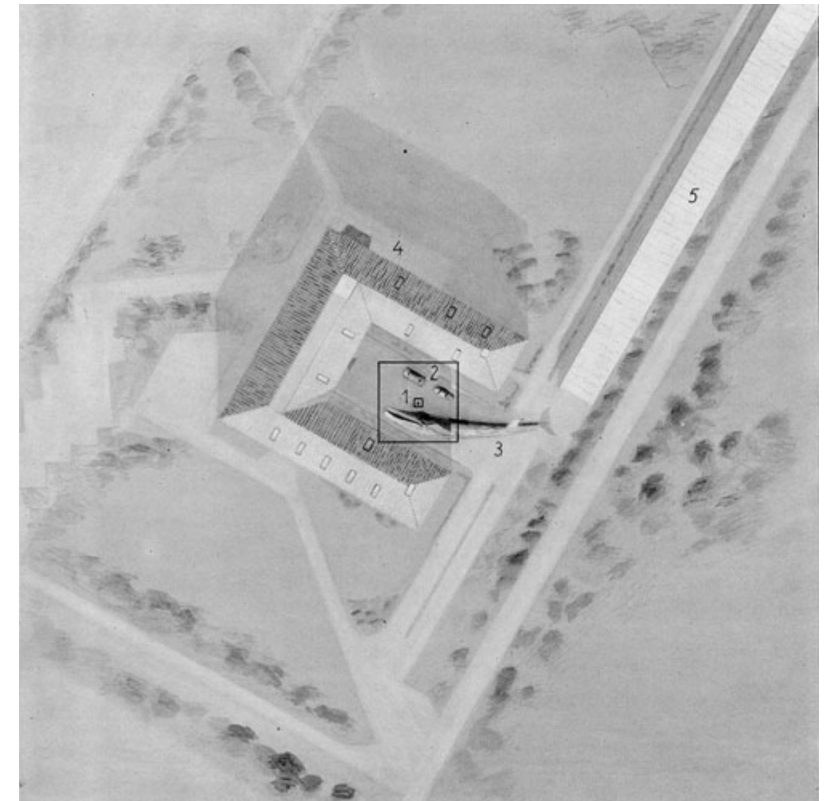
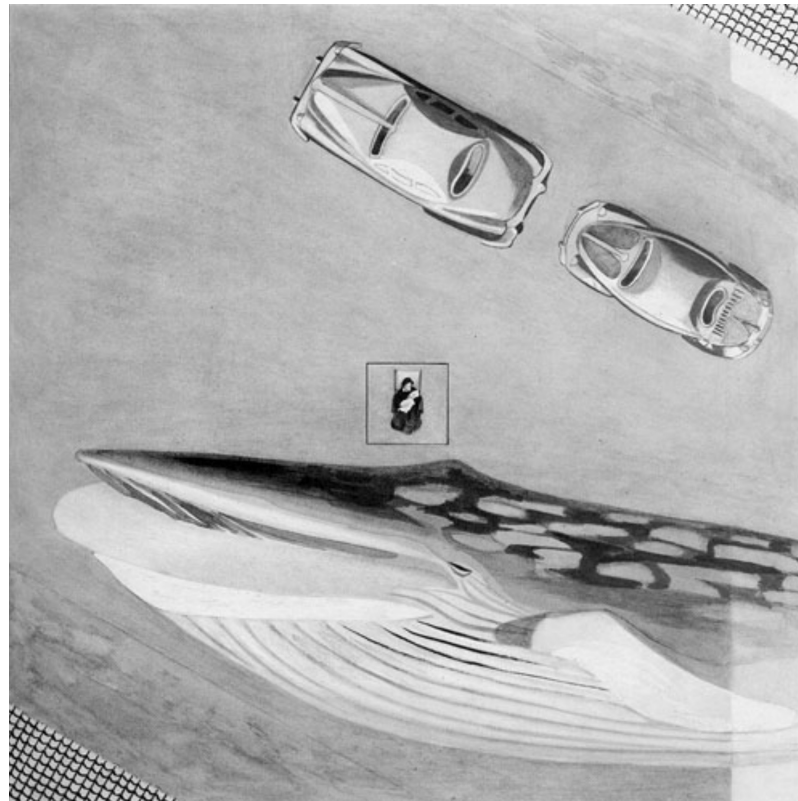
*Collectiveness*

## 4. Satellites



Intermediary level: Meso

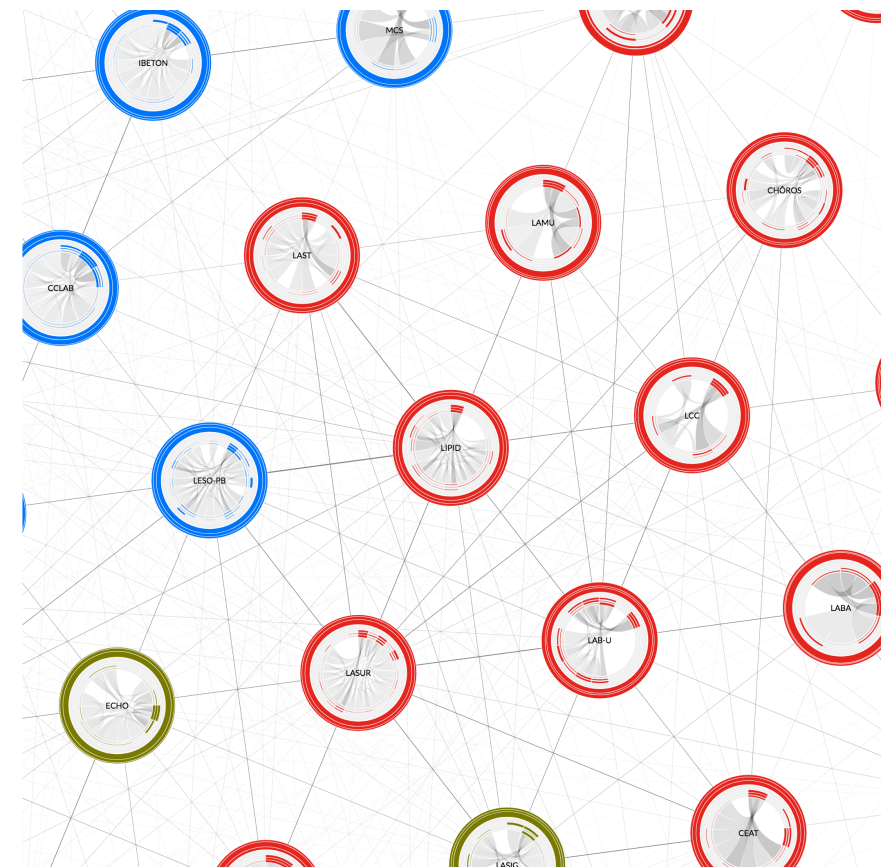
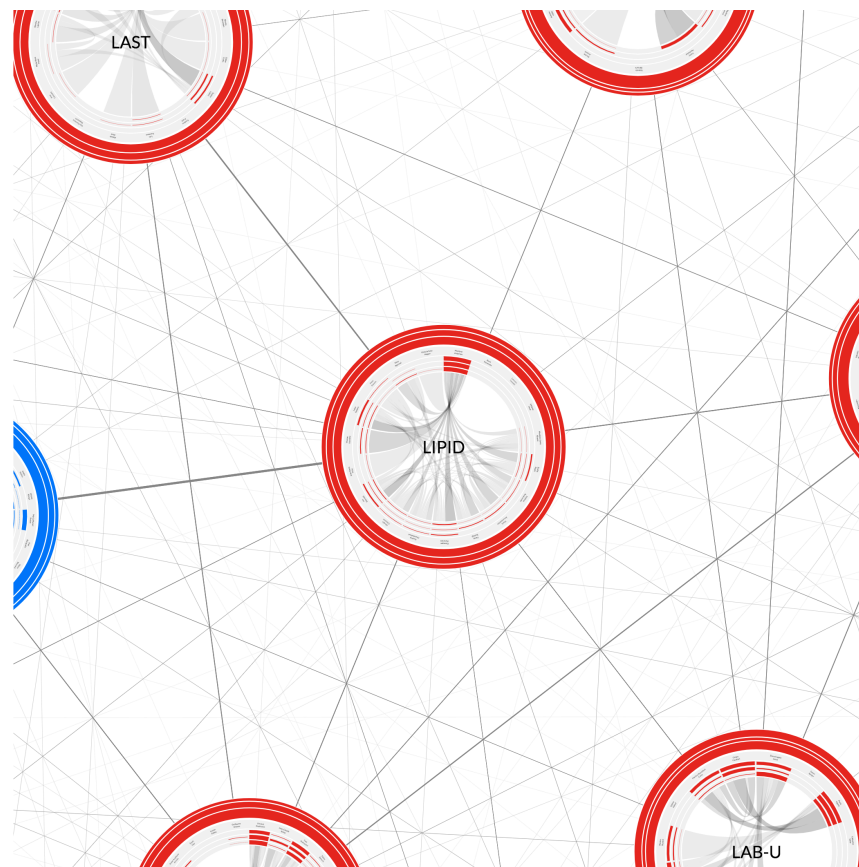
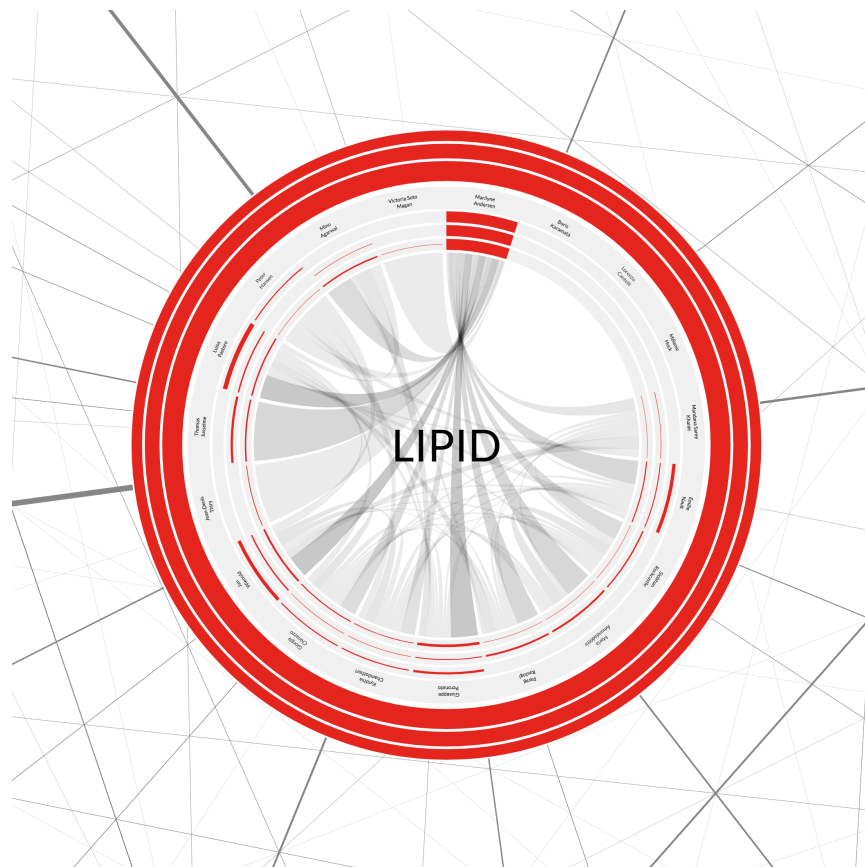
*“Visual Information-Seeking Mantra: overview first, zoom and filter, then details on demand.”*



Boeke, Kees. 1957. Cosmic View.

*“In this awesome journey to the ends of the universe, you have learned an immense amount about its structure and the beings and things that occupy it, and above all about the relationships of things to each other, in their various scales of dimension, with a vividness that words cannot express.”*





Hexagonal network is unified with the visualizations of the nodes.



*It is incorrect [...] to think that maps [...] prove the reality of the zoom effect: when one shifts from a map on a scale of 1 cm to 1 km to one on 1 cm to 10 km, the latter does not contain the same information as the former: it contains other information that might (or might not) coincide with what appears in the former.*



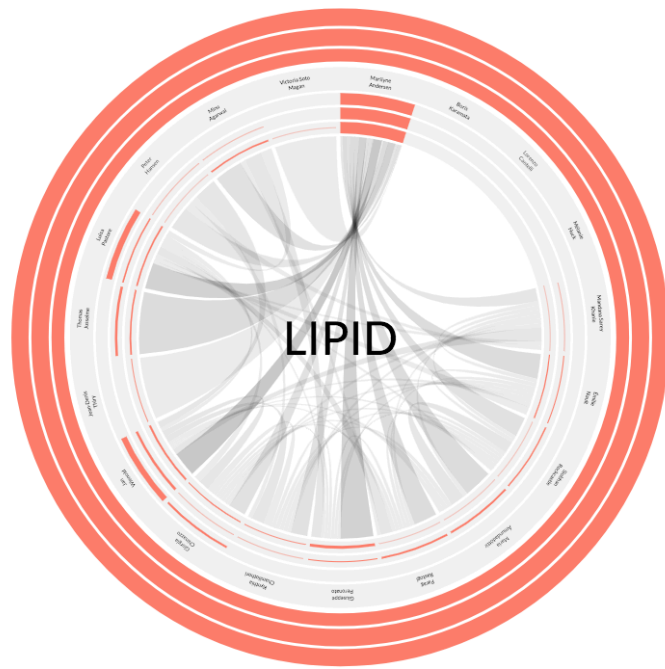
*“Micro and macro [...] are really two faces of the same thing”*

# 5. Background

*“In information retrieval,  $tf-idf$  or  $TFIDF$ , short for term frequency–inverse document frequency, is a numerical statistic that is intended to reflect how important a word is to a document in a collection or corpus.”*

*— Wikipedia 2018*

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1  [{
2    "id": 53310,
3    "authors": ["Bradley, Joseph", "Loucks, Jeff", "Macaulay, James", "Noronha, Andy", "Wade, Mi
4    "title": "Digital vortex: How digital disruption is redefining industries",
5    "description": "Digital business transformation is a journey to adopt and deploy digital tec
6    "keywords": ["DIGITAL DISRUPTION", "DIGITAL BUSINESS TRANSFORMATION", "DIGITAL VORTEX"],
7    "terms": {
8      "digital": 13.493059996310013,
9      "disruption": 12.672948161851869,
10     "journey": 8.842000017916671,
11     "models": 7.666426688112432,
12     "technologies": 7.558292245571881,
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27   }
28 }, {
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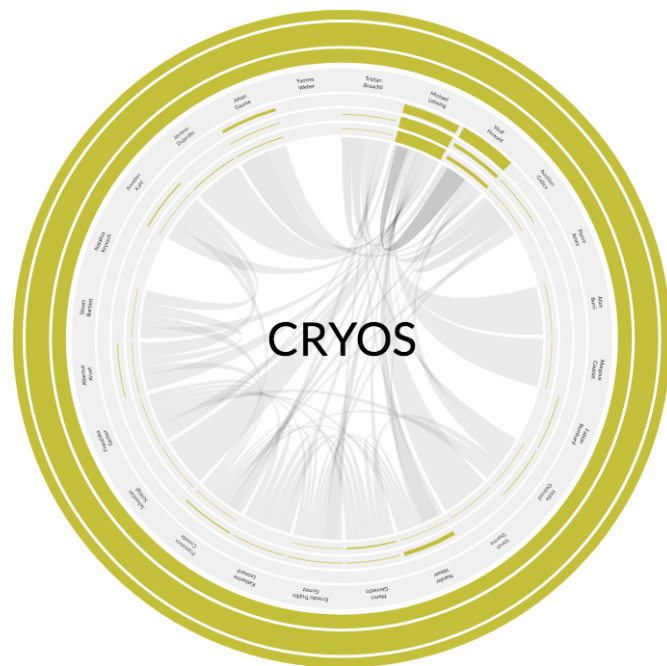


solar  
thermal  
climate  
energy

bipv  
solar  
energy  
buildings  
assessment  
neighborhood  
architectural  
irradiation  
prototype  
workflow  
design  
urban

## Characteristics

- Use of hexagonal grid
- Justification of closeness
- Semantic layer on links
- Color meaning

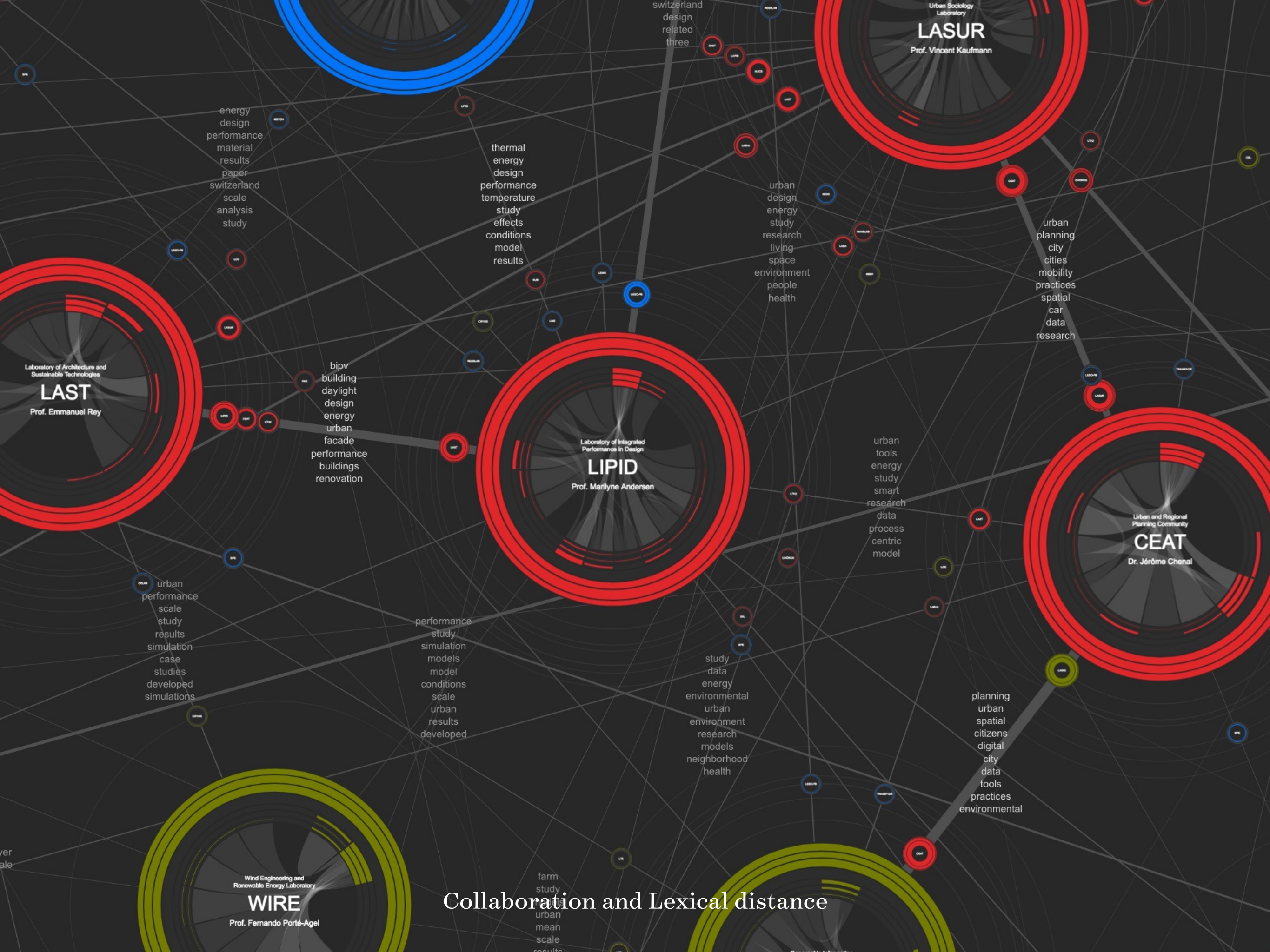


solar  
energy



Keywords as potential affinities.



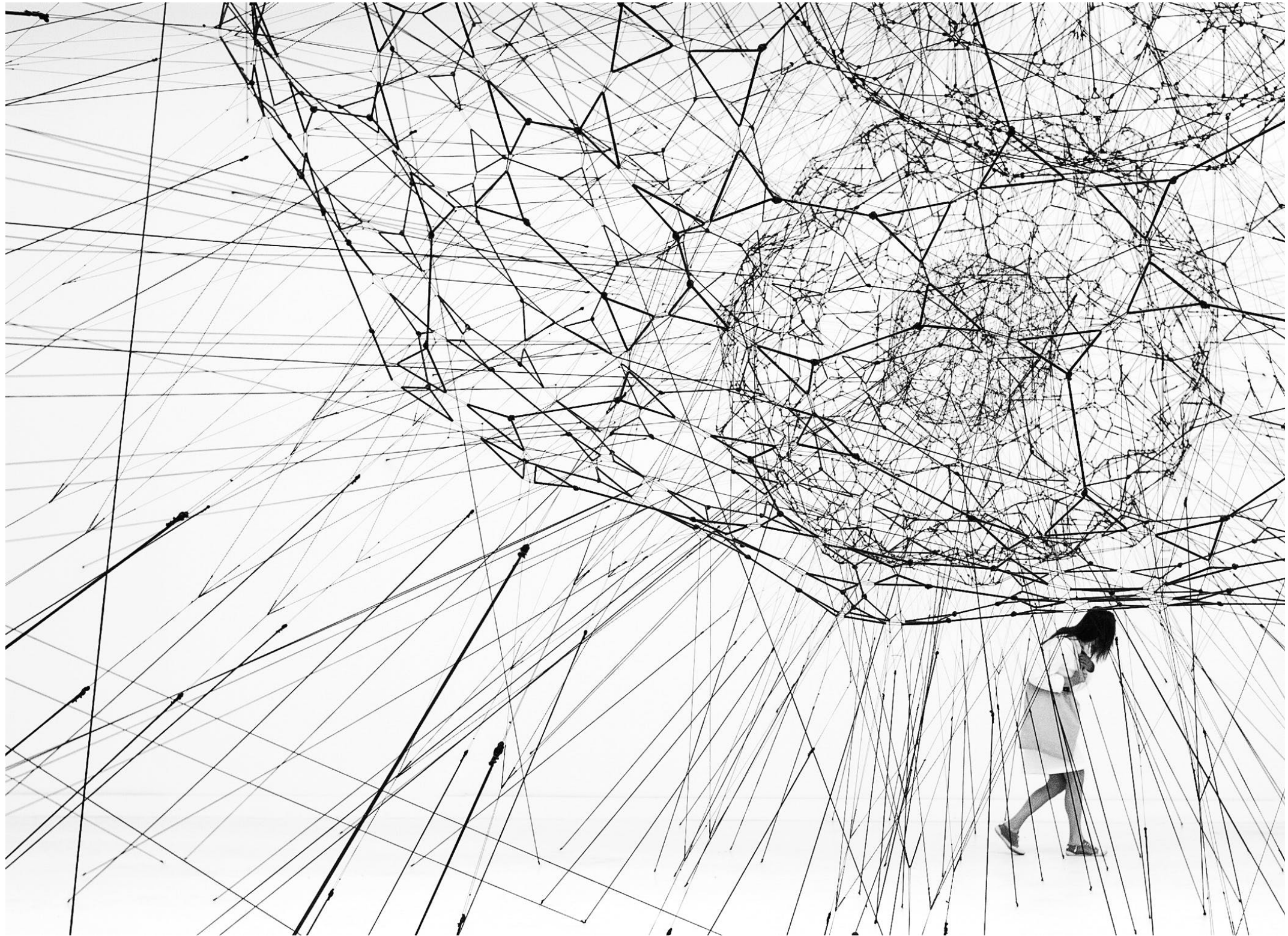


## Collaboration and Lexical distance



## 6. Conclusions

*“Higher Gestalten are those in which the combined effect of unity of the whole and manifoldness of the parts is greater”*



Latour, Bruno. 2013. Some Experiments in Art and Politics.  
<https://www.apollo-magazine.com/art-diary/tomas-saraceno-sfmoma/>

*“Dans une formule célèbre de la **Monadologie**, Leibniz dit que les notions individuelles sont sans portes ni fenêtres. [...] Les notions individuelles sont sans portes ni fenêtres, tout est inclus en chacune, et pourtant il y a un monde commun à toutes les notions individuelles: **c’est que ce que chaque notion individuelle inclut, à savoir la totalité du monde**”*



# Micro *Meso* Macro

Thanks

<https://dariorodighiero.com>

@dariorodighiero